

PATENT
5310-10100

CERTIFICATE OF EXPRESS MAIL
UNDER 37 C.F.R. §1.10

"Express Mail" mailing label number:
DATE OF DEPOSIT:

I hereby certify that this paper or fee is being deposited with the
United States Postal Service "Express Mail Post Office to
Addressee" service under 37 C.F.R. §1.10 on the date indicated
above and is addressed to:

Commissioner for Patents
Mail Stop Patent Application
Alexandria, VA 22313-1450

Jade E. Turner

CONTAINER, PARTICULARLY A SUPPORT FOR PLANTS

By:

Guy Chanet

Michel Maradan

Attorney Docket No.: 5310-10100

SUBSTITUTE PAGE

Customer No.: 35690
Eric B. Meyertons
Meyertons, Hood, Kivlin, Kowert & Goetzel, P.C.
P.O. Box 398
Austin, Texas 78767-0398
Ph: (512) 853-8800

BACKGROUND OF THE INVENTION

Field of the Invention

5 The present invention relates to a container which can advantageously form a support for plants designed to enclose the plant peripherally, particularly when it is in a pot.

SUMMARY OF THE INVENTION

10 A one-piece container, which may particularly form a support for plants, includes at least two coaxial annular elements joined together by arms whose end portions extend laterally to said annular elements and are articulated on these annular elements by means of radially extending, deformable pivot pins, said annular elements being displaceable coaxially in relation to one another between a folded position in which said annular elements are arranged around one
15 another and at a distance from one another and said arms extend between them, and an unfolded position in which they are moved away from one another at the same time as said arms change orientation and said annular elements turn in relation to one another.

20 According to an embodiment, said arms and said annular elements include reciprocal bearing means including projecting fingers which run at a distance alongside said pivot pins and some of which fingers come above the others when said annular elements and said arms are brought into the aforementioned unfolded position, so as to bear on one another and maintain said annular elements and said arms in this unfolded position.

25 According to an embodiment, said reciprocal bearing means include pairs of projecting fingers arranged on either side of said pivot pins and symmetrically with respect to them so as to form the branches of a U, the pairs of projecting fingers of said arms being outside the pairs of projecting fingers of said annular elements.

According to an embodiment, said projecting fingers of said arms and of said annular elements preferably have substantially rectangular cross sections and, in the aforementioned folded position, are preferably arranged substantially parallel facing one another and
5 perpendicularly to the plane of the annular elements and, in the aforementioned unfolded position, are preferably arranged substantially perpendicularly.

According to an embodiment, said projecting fingers preferably respectively have recessed and projecting portions forming hooks which cooperate radially when said annular
10 elements are brought into the aforementioned unfolded position.

According to an embodiment, said fingers and said pivot pins preferably have, in the folded position, through-passages between them which are perpendicular to the plane of said annular elements and said arms.

According to an embodiment, at least one of said arms preferably includes an appendage directed toward one of its ends, the end of which appendage has a fork for latching onto the edge
of a pot.

BRIEF DESCRIPTION OF THE DRAWINGS

5 The present invention will be better understood on studying a container, forming a support for plants, described by way of nonlimiting example and illustrated by the drawing, in which:

10 FIG. 1 represents a plan view of a container according to an embodiment, in the folded position;

FIG. 2 represents an enlarged plan view of an articulation of the container shown in FIG. 1, in the folded position;

15 FIG. 3 represents a radial section on III-III of the articulation shown in FIG. 2, in the folded position;

FIG. 4 represents a radial section, corresponding to the section on III-III, of the articulation shown in FIG. 2, in the unfolded position;

20 FIG. 5 represents an axial section of the articulation shown in FIG. 2, in the unfolded position; and

FIG. 6 represents a variant embodiment of said articulation.

25 While the invention is susceptible to various modifications and alternative forms, specific embodiments thereof are shown by way of example in the drawings and will herein be described in detail. It should be understood, however, that the drawing and detailed description thereto are not intended to limit the invention to the particular form disclosed, but on the contrary, the

intention is to cover all modifications, equivalents and alternatives falling within the spirit and scope of the present invention as defined by the appended claims.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

5

As in the case of document FR-A-2 730 379, the one-piece container 101 represented in FIG. 1, intended to form a support for plants, includes three coaxial circular rings, namely an inner ring 102, an intermediate ring 103 and an outer or upper ring 104, these rings generally being of square or slightly rectangular cross section in the direction of their axis.

10

The rings 102 and 103 are joined by three arms 105 distributed over their periphery, and the rings 103 and 104 are joined by three arms 106 distributed over their periphery, these arms being of square or slightly rectangular cross section in the direction of the axis of the rings.

15

The ends of the arms 105 and the ends of the arms 106 are respectively joined to the rings 102 and 103 and to the rings 103 and 104 by means of articulations 107, which are all identical.

20

The container 101 can be manufactured by molding in a compression mold, in a folded position represented in FIG. 1 in which the rings 102, 103 and 104 extend in the same plane and form annular spaces between them in which the connection arms 105 and 106 extend in this plane, the articulations 107 of the ends of these connection arms being angularly offset in a distributed manner.

25

From the folded position visible in FIG. 1, the container 101 can be brought into a deployed or unfolded position, partially visible in FIGS. 5 and 6, in which the rings 102, 103 and 104 are axially offset and the connection arms 105 and 106 extend substantially axially, this change of position being obtained by pivoting the arms 105 and 106 about their articulations 107 at the same time as the rings 102, 103 and 104 turn about their axis.

With reference more specifically to FIGS. 2 to 5, a description will now be given of an articulation 107, associated with bearing and retaining means 108 which join the ring 104 to a connection arm 106, the other articulations 107 being identical in this example.

5

The connection arm 106 has an end portion 109 which extends laterally and at a distance from a cylindrical flank 110 of the ring 104 and which has a flank 111 which faces the flank 110.

The articulation 107 includes a cylindrical pin 112 which joins the central portion of the flank 111 of the connection arm 106 to the central portion of the flank 110 of the ring 104 and which extends radially to this ring.

15

This connection pin 112 is deformable so that it can twist when the arm 106 pivots with respect to the ring 104, as has been described above.

The bearing and retaining means 108 associated with the articulation 107 are constructed in the following manner.

20

The ring 104 has a pair of projecting fingers 113 and 114 which extend from its flank 110, parallel to the connection pin 112, symmetrically with respect to this pin and in the direction of the flank 111 of the arm 106. These fingers 113 and 114 are substantially of substantially rectangular cross section, their large sides extending perpendicularly to the plane of the ring 104. Thus, the fingers 113 and 114 form the parallel branches of a U in the center of which the connection pin 112 extends.

25

The end portion 109 of the arm 106 has a pair of projecting fingers 114 and 116 which extend parallel to the connection pin 112, symmetrically with respect to this pin and in the direction of the flank 110 of the ring 104. These fingers 115 and 116 are of substantially

rectangular cross section, their large sides extending substantially perpendicularly to the longitudinal direction of the arm 106. Thus, the fingers 115 and 116 form the parallel branches of a U in the center of which the connection pin 112 extends.

5 As shown more precisely in FIGS. 2 and 3, in which the ring 104 and the connection arm 106 are in the folded position and extend substantially in the same plane, the fingers 115 and 116 are outside and at a distance from the fingers 113 and 114, the large sides of the fingers 115 and 116 extending parallel to the large sides of the fingers 113 and 114.

10 Thus, there are through-passages between the connection pin 112 and the fingers 113 and 114 and through-passages between the fingers 113 and 114 and the fingers 115 and 116, which means that such arrangements can be obtained by molding in a compression mold.

15 The pairs of fingers 113 and 114 and the pairs of fingers 115 and 116 are spaced apart in such a way that when the connection arm 106 is pivoted with respect to the ring 104, the fingers 115 and 116 of the connection arm 106 pass around the corners of the fingers 113 and 114, bearing on these in the process. They deform mutually in a substantially elastic manner.

20 As shown in FIGS. 4 and 5, when the connection arm 106 reaches its unfolded position in which it extends perpendicularly to the ring 104, the fingers 113, 114, 115 and 116 substantially readopt their initial positions. The fingers 115 and 116 of the connection arm 106 then extend perpendicularly to the fingers 113 and 114 of the ring 104, the fingers 115 and 116 being placed outside the fingers 113 and 114.

25 The large sides of the fingers 115 and 116 of the connection arm 106 then bear on the small sides of the fingers 113 and 114 of the ring 104, symmetrically with respect to a plane passing through the connection pin 112 and perpendicular to the ring 104.

Thus, the aforementioned U formed by the fingers 115 and 116 entraps the aforementioned U formed by the fingers 113 and 114, these two U-shapes being arranged perpendicularly. They thus form a coupling between the connection arm 106 and the ring 104.

5 Consequently, this coupling makes it possible to maintain the connection arm 106 in the unfolded position with respect to the ring 104 and contributes to strengthening the connection between the connection arm 106 and the ring 104, since pulling or pushing actions applied to the connection arm 106 in its direction, perpendicularly to the ring 104, are of course absorbed to a certain extent by the fingers 115 and 116 bearing on the fingers 113 and 114, exerting little or no
10 stress on the connection pin 112 perpendicularly to its direction.

 Furthermore, the aforementioned coupling constitutes a means which makes it possible to maintain the rotation of the connection arm 106 with respect to the ring 104, in their unfolded position.

15 As can be seen from FIG. 1, the articulations of the arms 105 and 106 on the intermediate ring 103 are formed symmetrically with respect to this ring.

 With reference to FIG. 6, in which the connection arm 106 and the ring 104 are in the
20 unfolded position, it can be seen that the finger 116 of the connection arm 106, which is formed at the end of this arm, and the small sides of the fingers 113 and 114 of the ring 104, which bear on this finger 116, respectively have a projecting portion 117 and recessed portions 118 which are engaged in one another perpendicularly to the connection pin 112.

25 These portions 117 and 118, which couple together when the connection arm 106 and the ring 114 are brought into their unfolded position, constitute hooks which, to a certain extent, prevent the finger 116 from sliding over corresponding small sides of the fingers 113 and 114

parallel to the connection pin 112. This arrangement also contributes, to a certain extent, to strengthening the connection between the connection arm 106 and the ring 114.

As can be seen from FIG. 1, the inner ring 102 has wavy portions 119 which allow it to be adapted to the cross section of a pot, and the connection arms 105 have appendages 120 which extend in the direction of the articulations 107 which connect them to the ring 102. These appendages 120 are provided at their ends with latching forks 121 which can straddle the edge of a pot after the container 101 has been deployed and coupled to this pot via the ring 102, below an upper peripheral rim of this pot.

The present invention is not restricted to the examples described above. Many variant embodiments are possible without departing from the scope defined by the appended claims.